CMS audit, ask more than the release number

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Summary

1 Introduction

2 World most used CMS

3 Why and how audit a CMS?

4 Tools for blackbox auditing most used CMS

5 Conclusion

Who am I?

IT Security Consultant

- Vulnerability watching
- Incident response
- Security compliance

CMS knowledge

- As an administrator
- As an incident response engineer
- As a vulnerability researcher

Why am I doing this talk?

CMS are often forgotten

- security recommendations
- patch management
- pentest planning

Give some basic security knowledge to secure CMS

Tools

- Present you some tools
  - I am not a (main) developper from WPScan, joomscan, etc.
- Give some truth about some tools you may have eard about

Sumary

1. Introduction
2. World most used CMS
3. Why and how audit a CMS?
   - Why?
   - How to? Make it fast or make it clean
4. Tools for blackbox auditing most used CMS
   - Some oversold products
   - Joomscan
   - WPScan
5. Conclusion

Be careful!

Tools used in the following screenshots could be run with:

- *./toolname.ext* or *script_language toolname.ext*
- *toolname*

KALI LINUX Since Kali Linux, all tools are included in the PATH!

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5 Conclusion

World most used CMS

What is a CMS?

- Content Management System

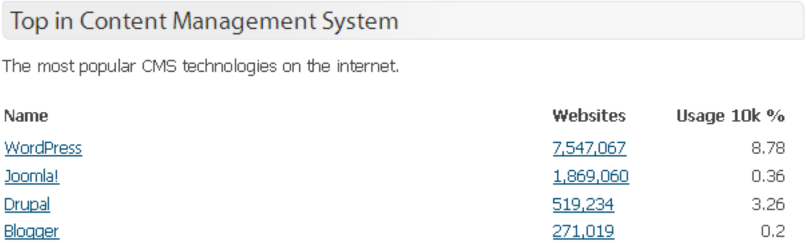
Why use a CMS?

- You dont need
  - Developpement knowledge
  - Graphical skills
- You get
  - Something quickly functional
  - Modularity with plugins

World most used CMS

- Some CMS:
    - Joomla!
    - Spip
    - WordPress
    - Blogger
    - Typo3
    - Drupal
    - DotNetNuke
    - PHPNuke
    - Etc.

World most used CMS



Top in Content Management System

The most popular CMS technologies on the internet.

Name	Websites	Usage 10k %
WordPress	7,547,067	8.78
Joomla!	1,869,060	0.36
Drupal	519,234	3.26
Blogger	271,019	0.2

Figure: http://trends.builtwith.com/cms (04/17/2013)

World most used CMS

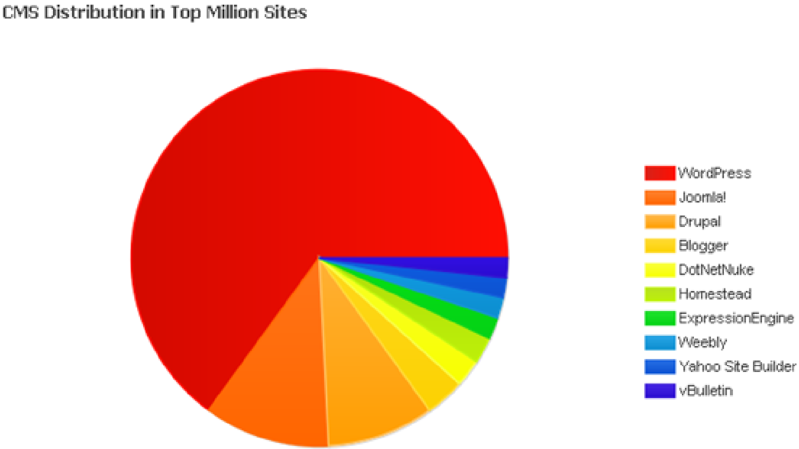


Figure: `http://trends.builtwith.com/cms/top` (04/17/2013)

World most used CMS

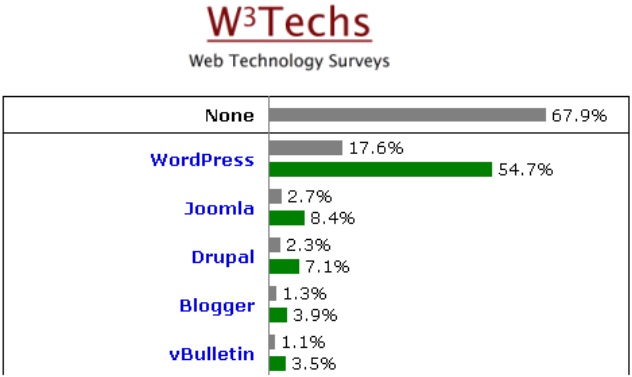
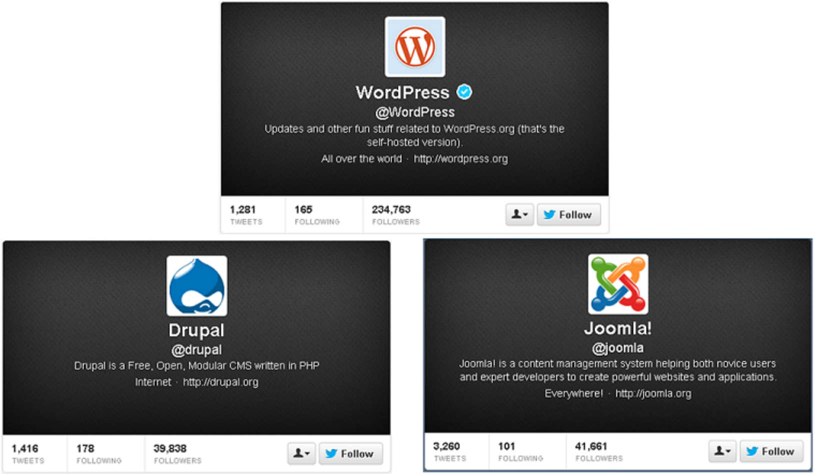


Figure: `http://w3techs.com/technologies/overview/content_management/all` (04/17/2013)

World most used CMS



WordPress

@WordPress

Updates and other fun stuff related to WordPress.org (that's the self-hosted version).

All over the world · http://wordpress.org

1,281 TWEETS | 165 FOLLOWING | 234,763 FOLLOWERS

Drupal

@drupal

Drupal is a Free, Open, Modular CMS written in PHP

Internet · http://drupal.org

1,416 TWEETS | 178 FOLLOWING | 39,838 FOLLOWERS

Joomla!

@joomla

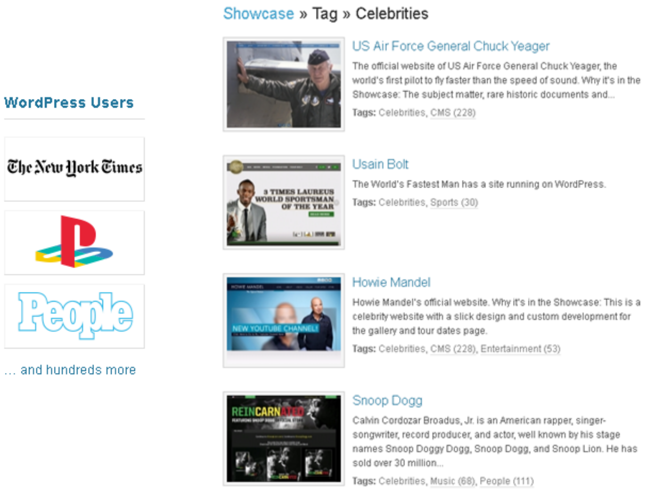
Joomla! is a content management system helping both novice users and expert developers to create powerful websites and applications.

Everywhere! · http://joomla.org

3,260 TWEETS | 101 FOLLOWING | 41,661 FOLLOWERS

Figure: https://twitter.com/WordPress, https://twitter.com/drupal and https://twitter.com/joomla

World most used CMS



WordPress Users

... and hundreds more

Showcase » Tag » Celebrities

US Air Force General Chuck Yeager

The official website of US Air Force General Chuck Yeager, the world's first pilot to fly faster than the speed of sound. Why it's in the Showcase: The subject matter, rare historic documents and...

Tags: Celebrities, CMS (228)

Usain Bolt

The World's Fastest Man has a site running on WordPress.

Tags: Celebrities, Sports (30)

Howie Mandel

Howie Mandel's official website. Why it's in the Showcase: This is a celebrity website with a slick design and custom development for the gallery and tour dates page.

Tags: Celebrities, CMS (228), Entertainment (53)

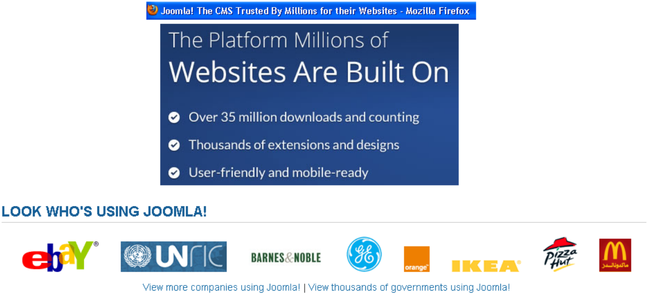
Snoop Dogg

Calvin Cordozar Broadus, Jr. is an American rapper, singer-songwriter, record producer, and actor, well known by his stage names Snoop Doggy Dogg, Snoop Dogg, and Snoop Lion. He has sold over 30 million...

Tags: Celebrities, Music (68), People (111)

Figure: `http://wordpress.org/` and `http://wordpress.org/showcase/tag/celebrities/` (04/17/2013)

World most used CMS



Joomla! The CMS Trusted By Millions for their Websites - Mozilla Firefox

The Platform Millions of Websites Are Built On

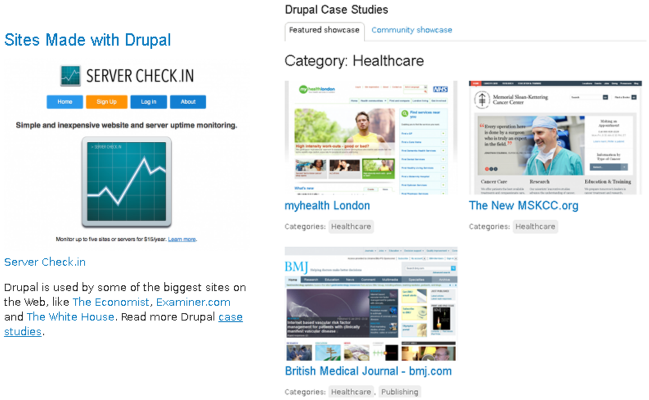
- Over 35 million downloads and counting
- Thousands of extensions and designs
- User-friendly and mobile-ready

LOOK WHO'S USING JOOMLA!

View more companies using Joomla! | View thousands of governments using Joomla!

Figure: (04/17/2013) `http://www.joomla.org/`

World most used CMS



Sites Made with Drupal

SERVER CHECK.IN
Home
Sign Up
Log in
About
Simple and inexpensive website and server uptime monitoring.
Monitor up to five sites or servers for $15/year. Learn more.

Server Check.in

Drupal is used by some of the biggest sites on the Web, like The Economist, Examiner.com and The White House. Read more Drupal case studies.

Drupal Case Studies

Featured showcase | Community showcase

Category: Healthcare

myhealth London

Categories: Healthcare

The New MSKCC.org

Categories: Healthcare

British Medical Journal - bmj.com

Categories: Healthcare, Publishing

Figure: `http://drupal.org/` and `http://drupal.org/case-studies/featured/25214` (04/17/2013)

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Why audit CMS?

Why audit CMS?

- They are used by companies as intranet or internet websites or applications
- They are the first step to get in your system

Attack scenarios

Scenario 1

CMS on a DMZ server:

- CMS allows file upload
- Server allows privilege escalation (PHP vulnerability)

Attack 1

- CMS allows file upload → Code execution
- PHP allows privilege escalation → Root privilege on a server in your DMZ

Attack scenarios

Scenario 2

CMS on an external server, uses for your mailing campaign.

- CMS allows XSS

Attack 2

- CMS allows XSS → Stealing admin credential
- Use your CMS for spam or stealing your customer DB

Attack scenarios

Oters cases

CMS vulnerable with ...

- Apache running as root
- CMS got a root account in MySQL
- etc.

Auditing CMS

Quick and dirty audit

- Which CMS?
- Which version?
- Is it vulnerable to known vulnerabilities?

Auditing CMS

Which CMS?

- Each CMS got its own spec (headers, files, admin dirs)

Which version?

- Headers can change between versions
- Look for new files
- Look for specific file hashes

Auditing CMS

Is it vulnerable to known vulnerabilities?

- CVE bulletins
- Editor bulletins
- Exploit-db, securityfocus
- etc.

Auditing CMS - Tools

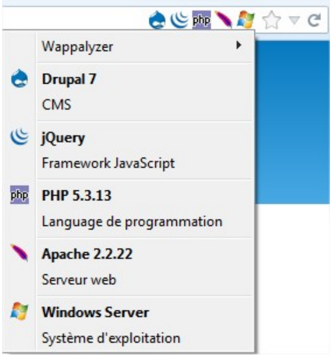
- Your browser
  - Look into the HTML code, lazy guys

```
<meta name="Generator" content="Drupal 7 (http://
drupal.org)" />

<meta name="generator" content="WordPress 3.5.1" />
```

Auditing CMS - Tools

- Wappalyzer (Firefox plugin)



Wappalyzer

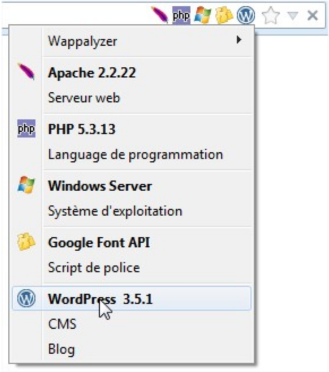
Drupal 7
CMS

jQuery
Framework JavaScript

PHP 5.3.13
Language de programmation

Apache 2.2.22
Serveur web

Windows Server
Système d'exploitation



Wappalyzer

Apache 2.2.22
Serveur web

PHP 5.3.13
Language de programmation

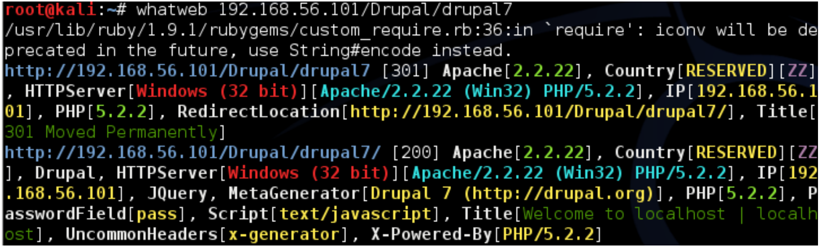
Windows Server
Système d'exploitation

Google Font API
Script de police

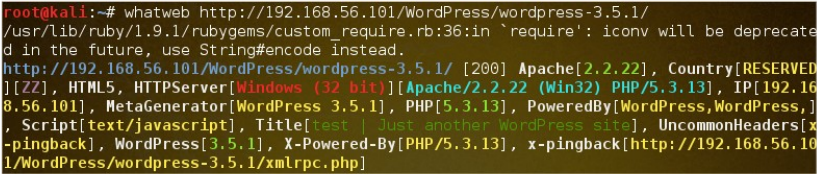
WordPress 3.5.1
CMS
Blog

Auditing CMS - Tools

- whatweb <<back|track KALI LINUX



```
root@kali:~# whatweb 192.168.56.101/Drupal/drupal7
/usr/lib/ruby/1.9.1/rubygems/custom_require.rb:36:in `require': iconv will be de
precated in the future, use String#encode instead.
http://192.168.56.101/Drupal/drupal7 [301] Apache[2.2.22], Country[RESERVED][ZZ]
, HTTPServer[Windows (32 bit)][Apache/2.2.22 (Win32) PHP/5.2.2], IP[192.168.56.1
01], PHP[5.2.2], RedirectLocation[http://192.168.56.101/Drupal/drupal7/], Title[
301 Moved Permanently]
http://192.168.56.101/Drupal/drupal7/ [200] Apache[2.2.22], Country[RESERVED][ZZ
], Drupal, HTTPServer[Windows (32 bit)][Apache/2.2.22 (Win32) PHP/5.2.2], IP[192
.168.56.101], JQuery, MetaGenerator[Drupal 7 (http://drupal.org)], PHP[5.2.2], P
asswordField[pass], Script[text/javascript], Title[Welcome to localhost | localh
ost], UncommonHeaders[x-generator], X-Powered-By[PHP/5.2.2]
```



```
root@kali:~# whatweb http://192.168.56.101/WordPress/wordpress-3.5.1/
/usr/lib/ruby/1.9.1/rubygems/custom_require.rb:36:in `require': iconv will be deprecate
d in the future, use String#encode instead.
http://192.168.56.101/WordPress/wordpress-3.5.1/ [200] Apache[2.2.22], Country[RESERVED
][ZZ], HTML5, HTTPServer[Windows (32 bit)][Apache/2.2.22 (Win32) PHP/5.3.13], IP[192.16
8.56.101], MetaGenerator[WordPress 3.5.1], PHP[5.3.13], PoweredBy[WordPress,WordPress,]
, Script[text/javascript], Title[test | Just another WordPress site], UncommonHeaders[x
-pingback], WordPress[3.5.1], X-Powered-By[PHP/5.3.13], x-pingback[http://192.168.56.10
1/WordPress/wordpress-3.5.1/xmlrpc.php]
```

Audition CMS - Tools

- BlindElephant.py <<back|track KALI LINUX

```
BlindElephant.py 192.168.56.101/Drupal/drupal7 drupal

Loaded /usr/lib/python2.7/dist-packages/blindelephant/dbs/
drupal.pkl  with 145 versions, 478 differentiating paths, and
 434 version groups.
Starting BlindElephant fingerprint for version of drupal
 at http://192.168.56.101/Drupal/drupal7
Hit http://192.168.56.101/Drupal/drupal7/CHANGELOG.txt
[...]
Hit http://192.168.56.101/Drupal/drupal7/misc/drupal.css
File produced no match. Error: Failed to reach a server:  Not
 Found

Fingerprinting resulted in: 7.14

Best Guess: 7.14
```

Audition CMS - Tools

- BlindElephant.py back|track KALI LINUX

```
BlindElephant.py 192.168.56.101/WordPress/wordpress-3.5.1/
 wordpress
Loaded /usr/lib/python2.7/dist-packages/blindelephant/dbs/
wordpress.pkl with 293 versions, 5389 differentiating paths,
 and 480 version groups.
Starting BlindElephant fingerprint for version of wordpress
 at http://192.168.56.101/WordPress/wordpress-3.5.1
[...]
Hit http://192.168.56.101/WordPress/wordpress-3.5.1/wp-includes
/js/tinymce/themes/advanced/anchor.htm
File produced no match. Error: Retrieved file doesn't match
 known fingerprint. fde5de4cc6965fed45dc224cf43a27ed
[...]
Best Guess: 3.4.2
```

Auditing CMS

How to secure a CMS? (non-exhaustive)

- Keep up to date
  - the CMS
  - plugins/themes (themes are also vulnerable!)
- Don't use some exotical plugins/themes
- Uninstall unused functionnalities (plugins/themes)
- Disable natives unused functionnalities
- Remove unused files (readme, install dir, etc.)
- Use strong password
- Configure your chmod

Auditing CMS

Complete audit

- Which
  - CMS
  - plugins/themes (themes are also vulnerable!)
  - versions
- Are they vulnerable to some known vulnerabilities (or to easy 0day)?
- What configuration?
- Usernames (and passwords)

Auditing CMS

Automatisation or partial automatisation

- Detect CMS/plugins/themes used, their versions and their configurations
- Look if versions are vulnerable
- Bruteforce authentication

What tools on the internet?

- WordPress Version Checker
- DPScan
- Joomscan
- WPScan

Auditing CMS

Simple scripts

- WordPress Version Checker php
- DPScan back|track

(Real) software

- Joomscan back|track KALI LINUX
  - An OWASP project
- WPScan Ruby back|track KALI LINUX

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4 Tools for blackbox auditing most used CMS

- Some oversold products
- Joomscan
- WPScan

5 Conclusion

Some oversold products

- Simple Scripts
  - WordPress Version Checker
  - DPScan
- What is said on the internet?
- What do they really do?
- Another badass script from hell

Some oversold products - WordPress Version Checker

- WordPress Version Checker
  - What is said on the internet?

Sécurité WordPress : Détecter la version du CMS via un hash MD5 c'est possible !

2 octobre 2012 - 1 commentaire

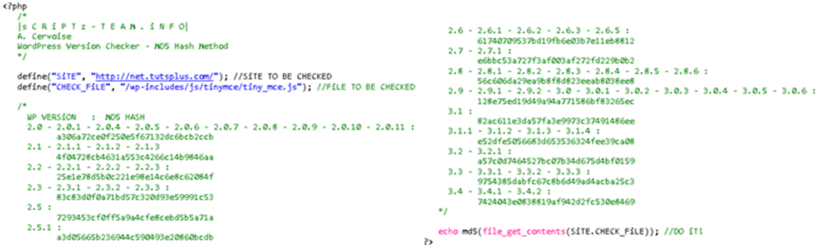
Publié par UnderNews Actu

Les pirates informatiques sont très malins et exploitent la moindre astuce découverte afin de toucher un maximum de sites Web via leurs exploits développés exprès. Aujourd'hui, c'est une nouvelle technique de détection de la version du CMS WordPress qui fait son apparition.

Figure: http://www.undernews.fr/reseau-securite/securite-wordpress-detecter... (06/30/2013)

Some oversold products - WordPress Version Checker

- WordPress Version Checker
  - What does it do?



```
<?php
  /*
  |s C R i P T z - T E A M . i N F O|
  A. Cervoise
  WordPress Version Checker - MD5 Hash Method
  */

  define("SiTE", "http://net.tutsplus.com/"); //SiTE TO BE CHECKED
  define("CHECK_FiLE", "/wp-includes/js/tinymce/tiny_mce.js"); //FiLE TO BE CHECKED

  /*
    WP VERSiON    :  MD5 HASH
    2.0 - 2.0.1 - 2.0.4 - 2.0.5 - 2.0.6 - 2.0.7 - 2.0.8 - 2.0.9 - 2.0.10 - 2.0.11 :
          a306a72ce0f250e5f67132dc6bcb2ccb
    2.1 - 2.1.1 - 2.1.2 - 2.1.3
          4f04728cb4631a553c4266c14b9846aa
    2.2 - 2.2.1 - 2.2.2 - 2.2.3 :
          25e1e78d5b0c221e98e14c6e8c62084f
    2.3 - 2.3.1 - 2.3.2 - 2.3.3 :
          83c83d0f0a71bd57c320d93e59991c53
    2.5 :
          7293453cf0ff5a9a4cfe8cebd5b5a71a
    2.5.1 :
          a3d05665b236944c590493e20860bcdb
    2.6 - 2.6.1 - 2.6.2 - 2.6.3 - 2.6.5 :
          61740709537bd19fb6e03b7e11eb8812
    2.7 - 2.7.1 :
          e6bbc53a727f3af003af272fd229b0b2
    2.8 - 2.8.1 - 2.8.2 - 2.8.3 - 2.8.4 - 2.8.5 - 2.8.6 :
          56c606da29ea9b8f8d823eeab8038ee8
    2.9 - 2.9.1 - 2.9.2 - 3.0 - 3.0.1 - 3.0.2 - 3.0.3 - 3.0.4 - 3.0.5 - 3.0.6 :
          128e75ed19d49a94a771586bf83265ec
    3.1 :
          82ac611e3da57fa3e9973c37491486ee
    3.1.1 - 3.1.2 - 3.1.3 - 3.1.4 :
          e52dfe5056683d653536324fee39ca08
    3.2 - 3.2.1 :
          a57c0d7464527bc07b34d675d4bf0159
    3.3 - 3.3.1 - 3.3.2 - 3.3.3 :
          9754385dabfc67c8b6d49ad4acba25c3
    3.4 - 3.4.1 - 3.4.2 :
          7424043e0838819af942d2fc530e8469
  */

  echo md5(file_get_contents(SiTE.CHECK_FiLE)); //DO iT!
?>
```

Some oversold products - WordPress Version Checker

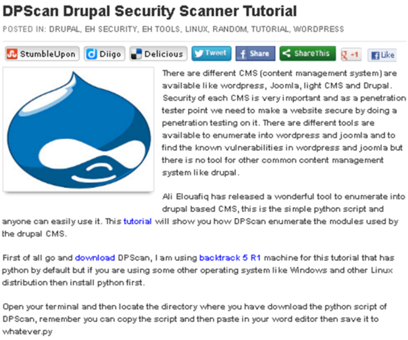
- WordPress Version Checker
  - What does it do?
    - Just get MD5 sum of */wp-includes/js/tinymce/tiny_mce.js*
    - Is given with a MD5 sum list

Some oversold products - WordPress Version Checker

- WordPress Version Checker
  - Method is not new (BlindElephant.py, WPScan)
  - Limitations
    - Do not work with WordPress older than 2.0
    - Do not give a specific version
    - Do not compare MD5 with the one in list
    - Code on pastebin
    - Original MD5 list is false

Some oversold products - DPScan

- DPScan
  - What is said on the internet?



DPScan Drupal Security Scanner Tutorial

POSTED IN: DRUPAL, EH SECURITY, EH TOOLS, LINUX, RANDOM, TUTORIAL, WORDPRESS

There are different CMS (content management system) are available like wordpress, Joomla, light CMS and Drupal. Security of each CMS is very important and as a penetration tester point we need to make a website secure by doing a penetration testing on it. There are different tools are available to enumerate into wordpress and joomla and to find the known vulnerabilities in wordpress and joomla but there is no tool for other common content management system like drupal.

Ali Elouafiq has released a wonderful tool to enumerate into drupal based CMS, this is the simple python script and anyone can easily use it. This tutorial will show you how DPScan enumerate the modules used by the drupal CMS.

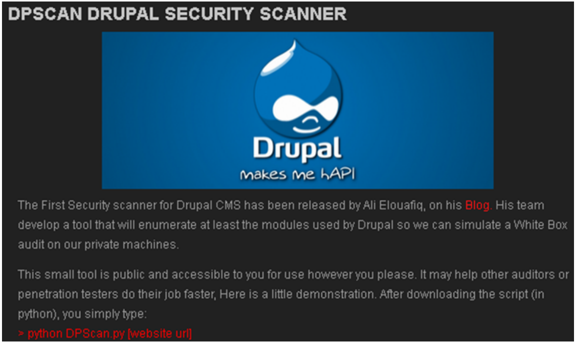
First of all go and download DPScan, I am using backtrack 5 R1 machine for this tutorial that has python by default but if you are using some other operating system like Windows and other Linux distribution then install python first.

Open your terminal and then locate the directory where you have download the python script of DPScan, remember you can copy the script and then paste in your word editor then save it to whatever.py

Figure: `http://www.ehacking.net/2012/02/dpscan-drupal-security-scanner-tutorial.html` (04/18/2013)

Some oversold products - DPScan

- DPScan
    - What is said on the internet?



DPSCAN DRUPAL SECURITY SCANNER

The First Security scanner for Drupal CMS has been released by Ali Elouafiq, on his Blog. His team develop a tool that will enumerate at least the modules used by Drupal so we can simulate a White Box audit on our private machines.

This small tool is public and accessible to you for use however you please. It may help other auditors or penetration testers do their job faster, Here is a little demonstration. After downloading the script (in python), you simply type:

```
> python DPScan.py [website url]
```

Figure: `http://www.thehackinguniverse.com/2012/06/dpscan-drupal-security-scanner.html` (04/18/2013)

Some oversold products - DPScan

- DPScan
  - Real name : DRUPAL Modules Enumerator
  - What does it do?
    - Analyze a HTML page (a file or with wget)
    - Looks for pattern *modules/module_name*
    - Return the list of modules

```
DRUPAL Modules Enumerator v0.1beta-- written by
 Ali Elouafiq 2012
<ScriptName> [filename.txt]
<ScriptName> [URL]
<ScriptName> [URL] user password // FOR HTTP AUTHORIZATION
```

Some oversold products - DPScan

- DPScan
  - Limitations
    - Limit the investigation to what is shown
    - Lots of bugs
    - Original code is unavailable at original URL
  - Version 0.3beta which corrected theses points here: `https://github.com/cervoise/DPScan`

Some oversold products - CMTE

Another badass tool from hell: CMTE

- Detect plugins/themes from any CMS
  - Method: BruteForce
  - Bases: CMS with plugins/themes path and plugins and themes list

Some Some oversold products - CMTE

Usage

- *python cmte.py url*
- Choose your CMS

```
python cmte.py 192.168.56.101/Drupal/drupal_commerce

Choose your CMS:
[1]: wordpress
[2]: wordpress_themes
[3]: drupal
[4]: drupal_theme
[...]
[13]: mediawiki
[14]: guppy
--->
```

Some Some oversold products - CMTE

Usage

- Brute-force from lists

```
After scan, try to go 192.168.56.101/Drupal/drupal_commerce
/modules, you could get more info.

41 modules or themes to check
41 modules or themes already checked
40 module(s) or theme(s) found:
aggregator
[...]
user
```

Some oversold products - CMTE

Project architecture

- cms-list.txt → list of CMS and path
- databases/ → dir with modules/themes lists
- get-mt-list/ → scripts for get some lists from the net
- readme.txt
- todo.txt

Some oversold products - CMTE

How to add CMS

- Get module dir
  - For example, in Drupal modules are in */modules*
- Add it in CMS base:
  - *drupal:modules*
- Add a list of modules
  - in */databases/drupal.txt*

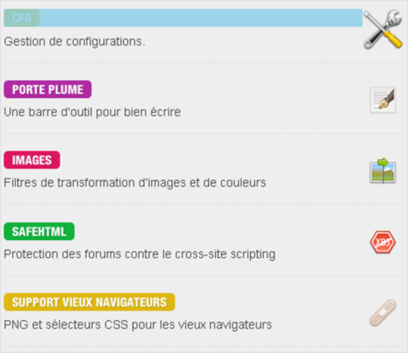
Some oversold products - CMTE

Automatic modules list

- WordPress
  - Use WPScan databases
- TYPO3 and SPIP
  - Plugins dir names are on official websites
  - Crawl official websites for getting all of them

Some oversold products - CMTE

SPIP



CFG
Gestion de configurations.

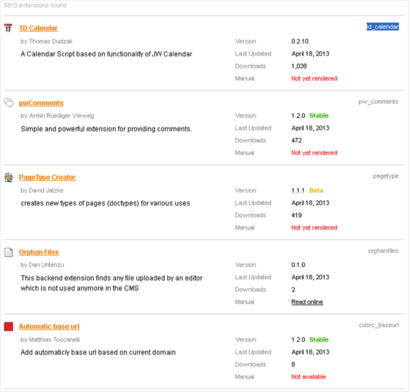
PORTE PLUME
Une barre d'outil pour bien écrire

IMAGES
Filtres de transformation d'images et de couleurs

SAFEHTML
Protection des forums contre le cross-site scripting

SUPPORT VIEUX NAVIGATEURS
PNG et sélecteurs CSS pour les vieux navigateurs

TYPO3



5810 extensions found

TD Calendar td_calendar
by Thomas Dudzak
A Calendar Script based on functionality of JW Calendar

Version	0.2.10
Last Updated	April 18, 2013
Downloads	1,038
Manual	Not yet rendered

pwComments pw_comments
by Armin Ruediger Vieweg
Simple and powerful extension for providing comments.

Version	1.2.0 Stable
Last Updated	April 18, 2013
Downloads	472
Manual	Not yet rendered

PageType Creator pagetype
by David Jatzke
creates new types of pages (doctypes) for various uses

Version	1.1.1 Beta
Last Updated	April 18, 2013
Downloads	419
Manual	Not yet rendered

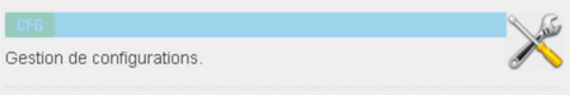
Orphan Files orphanfiles
by Dan Untenzu
This backend extension finds any file uploaded by an editor which is not used anymore in the CMS

Version	0.1.0
Last Updated	April 18, 2013
Downloads	2
Manual	Read online

Automatic base url cdsrc_baseurl
by Matthias Toscanelli
Add automaticly base url based on current domain

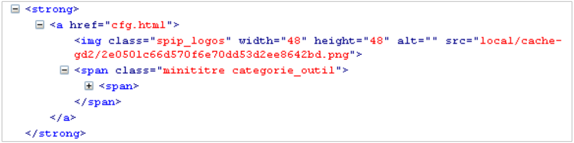
Version	1.2.0 Stable
Last Updated	April 18, 2013
Downloads	8
Manual	Not available

Some oversold products - CMTE



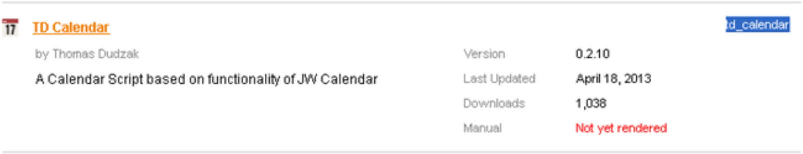
CFG

Gestion de configurations.



```
⊟ <strong>
    ⊟ <a href="cfg.html">
          <img class="spip_logos" width="48" height="48" alt="" src="local/cache-
          gd2/2e0501c66d570f6e70dd53d2ee8642bd.png">
        ⊟ <span class="minititre categorie_outil">
            ⊞ <span>
          </span>
      </a>
  </strong>
```

Some oversold products - CMTE



TD Calendar

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Some oversold products - CMTE

Evolution

- Add an update function using the scripts for automatic modules lists
- Add a CMS detection at the begining of the script

GitHub

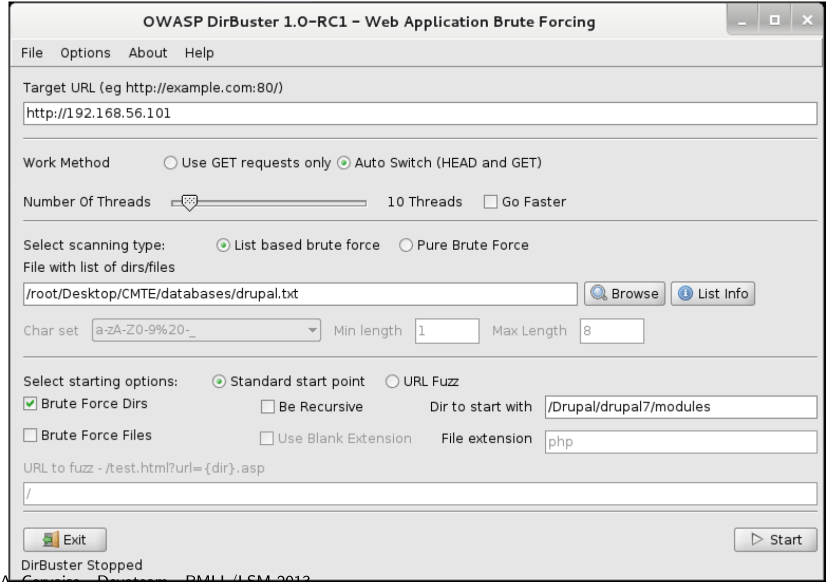
https://github.com/cervoise/CMTE

Some oversold products - CMTE

Alternative

- Use pattern and plugins lists in DirBuster

Some oversold products - CMTE



OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing

Target URL (eg http://example.com:80/)
http://192.168.56.101

Work Method ○ Use GET requests only ● Auto Switch (HEAD and GET)

Number Of Threads 10 Threads □ Go Faster

Select scanning type: ● List based brute force ○ Pure Brute Force

File with list of dirs/files
/root/Desktop/CMTE/databases/drupal.txt

Char set a-zA-Z0-9%20-_ Min length 1 Max Length 8

Select starting options: ● Standard start point ○ URL Fuzz

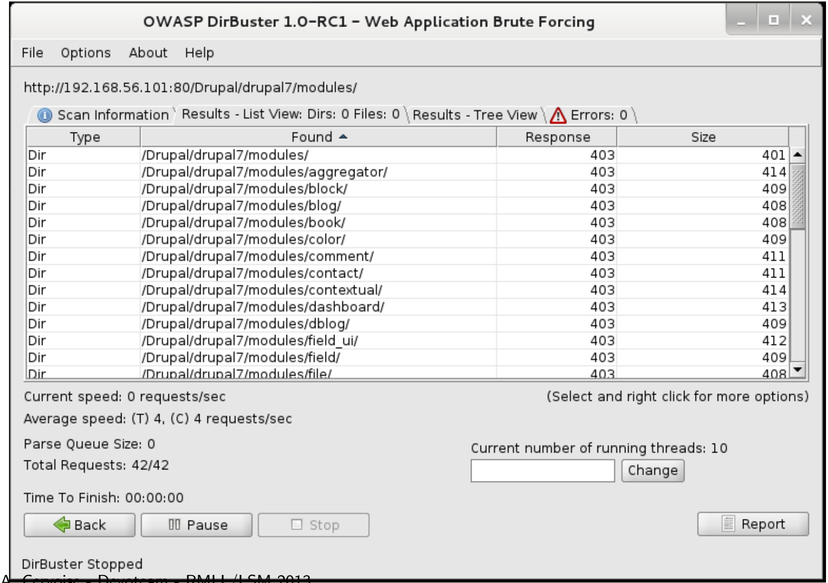
☑ Brute Force Dirs □ Be Recursive Dir to start with /Drupal/drupal7/modules

□ Brute Force Files □ Use Blank Extension File extension php

URL to fuzz - /test.html?url={dir}.asp
/

DirBuster Stopped

Some oversold products - CMTE


OWASP DirBuster 1.0-RC1 - Web Application Brute Forcing
File
Options
About
Help
Scan Information
Results - List View: Dirs: 0 Files: 0
Results - Tree View
Errors: 0
(Select and right click for more options)
Change
Back
Pause
Stop
Report

http://192.168.56.101:80/Drupal/drupal7/modules/

Type	Found	Response	Size
Dir	/Drupal/drupal7/modules/	403	401
Dir	/Drupal/drupal7/modules/aggregator/	403	414
Dir	/Drupal/drupal7/modules/block/	403	409
Dir	/Drupal/drupal7/modules/blog/	403	408
Dir	/Drupal/drupal7/modules/book/	403	408
Dir	/Drupal/drupal7/modules/color/	403	409
Dir	/Drupal/drupal7/modules/comment/	403	411
Dir	/Drupal/drupal7/modules/contact/	403	411
Dir	/Drupal/drupal7/modules/contextual/	403	414
Dir	/Drupal/drupal7/modules/dashboard/	403	413
Dir	/Drupal/drupal7/modules/dblog/	403	409
Dir	/Drupal/drupal7/modules/field_ui/	403	412
Dir	/Drupal/drupal7/modules/field/	403	409
Dir	/Drupal/drupal7/modules/file/	403	408

Current speed: 0 requests/sec

Average speed: (T) 4, (C) 4 requests/sec

Parse Queue Size: 0

Total Requests: 42/42

Time To Finish: 00:00:00

Current number of running threads: 10

DirBuster Stopped

Joomscan

History

- First release in December 2008
- Donated to OWASP in May 2009
- More info: *./joomscan.pl history*

Compatibility

- Win XP/Vista/Seven
- BackTrack 2/3/4/5 - Kali Linux
- Gentoo

Support

- Proxy
- Cookie

Joomscan

How it works?

- Try to connect to website
- Look for admin directory
- Look for anti scanner meseaure
- Look for Joomla Firewall
- Fingerprint
    - Meta generator tag and specific files content
- Look for component on the index page
    - As in DPScan
- Look for vulnerabilities

Joomscan

Pattern hardcoded in the script

- Look for admin directory
- Look for anti scanner meseaure
- Look for Joomla Firewall
- Fingerprint
- Look for component on the index page

External .txt DB

- Look for vulnerabilities

Joomscan

```
Target: http://192.168.56.101/Joomla/Joomla-1.5
Server: Apache/2.2.22 (Win32) PHP/5.2.2
X-Powered-By: PHP/5.2.2

## Checking if the target has deployed an Anti-Scanner measure
[!] Scanning Passed ..... OK

## Detecting Joomla! based Firewall ...
[!] No known firewall detected!

## Fingerprinting in progress ...
~1.5.x revealed [1.5.16 - 1.5.26]
~Generic version family ....... [1.5.x]

* Deduced version range is : [1.5.16 - 1.5.26]
## Fingerprinting done.
```

Joomscan

```
## 9 Components Found in front page  ##
 com_content  com_newsfeeds
 com_weblinks  com_search  com_contact
 com_user  com_wrapper  com_mailto
 com_poll
```

Joomscan

```
# 7
Info -> Core: Missing JEXEC Check - Path Disclosure
 Vulnerability
Versions effected: 1.5.11 <=
Check: /libraries/phpxmlrpc/xmlrpcs.php
Exploit: /libraries/phpxmlrpc/xmlrpcs.php
Vulnerable? No

Core:  Missing JEXEC Check - Path Disclosure Vulnerability
 Versions effected: 1.5.11 <=|/libraries/phpxmlrpc/xmlrpcs
.php|/libraries/phpxmlrpc/xmlrpcs.php
```

Joomscan

```
# 59
Info -> Core: Password change vulnerability & Information
 discolsure
Version effected: 1.5.25 <=
Check: /?1.5.25
Exploit: More info: http://www.joomla.org/announcements/
release-news/5419-joomla-1526-released.html
Vulnerable? Yes

Core: Password change vulnerability & Information discolsure
 Version effected: 1.5.25 <=|/?1.5.25|More info: http://www.
 joomla.org/announcements/release-news/5419-joomla-1526-
 released.html
```

WPScan

History

- Started in 2011
- Sponsored by the RandomStorm Open Source Initiative

Compatibility

- Windows not supported
- Ruby $\geq$ 1.9
- RubyGems
- Git
- Works on: Fedora, Debian, Ubuntu, Kali Linux, BackTrack, ArchLinux, MacOSX, etc.

WPScan

Support

- Multithread
  - For login bruteforce
  - For plugins/themes enumeration
- Proxy and proxy auth
- HTTP auth

WPScan

How it works?

By default make a non intrusive scan :

```
ruby wpscan.rb --url www.example.com
```

WPScan

Default scan, look for

- searchreplacedb2.php
    - An adminsitration tool which allow to load info from *wp-config.php*
- Multisites
- Enable registration
- Enable XML RPC
    - XML-RPC functionality is turned on by default since v3.5

WPScan

Default scan, look for

- robots.txt
- readme.html
- Full Path Disclosure
  - *wp-includes/rss-functions.php*
  - Wordpress allows a FPD, the only correction is to disable the *display_error* in *.htacess* or *php.ini* file.
- wp-config.php backup
  - List of wp-config.bak/.old/.txt etc.
  - From feross.org/cmsploit

WPScan

Default scan, look for

- Malwares
  - Known infection patterns
  - Load from data/malwares.txt
- Plugins and themes (passive detection)

Default scan, make fingerprinting

- HTML headers
- Specific files hashes
  - From *wp_version.xml*

WPScan

```
| URL: http://192.168.56.101/WordPress/wordpress-3.5.1/
| Started on Sat Jul  6 11:15:53 2013

[!] The WordPress 'http://192.168.56.101/WordPress/wordpress-3.5
/readme.html' file exists
[!] Full Path Disclosure (FPD) in 'http://192.168.56.101/WordPre
/wordpress-3.5.1/wp-includes/rss-functions.php'
[+] XML-RPC Interface available under http://192.168.56.101
/WordPress/wordpress-3.5.1/xmlrpc.php
[+] WordPress version 3.5.1 identified from meta generator

[!] We have identified 7 vulnerabilities from the version
 number :
[...]
```

WPScan

```
[+] The WordPress theme in use is twentytwelve v1.1

 | Name: twentytwelve v1.1
 | Location: http://192.168.56.101/WordPress/wordpress-3.5.1
/wp-content/themes/twentytwelve/

[+] Enumerating plugins from passive detection ...
No plugins found :(

[+] Finished at Sat Jul  6 11:15:53 2013
[+] Elapsed time: 00:00:00
```

WPScan

Differents enumeration options

```
--enumerate | -e [option(s)]  Enumeration.
  option :
    u        usernames from id 1 to 10
    u[10-20] usernames from id 10 to 20 (you must write
 [] chars)
    p        plugins
    vp       only vulnerable plugins
    ap       all plugins (can take a long time)
    tt       timthumbs
    t        themes
    vt       only vulnerable themes
    at       all themes (can take a long time)
  Multiple values are allowed : '-e tt,p' will enumerate
 timthumbs and plugins
  If no option is supplied, the default is 'vt,tt,u,vp'
```

WPScan

Vulnerabilities

Checks vulnerabilities for your WordPress version (from *data/wp_vulns.xml*).

```
[!] We have identified 7 vulnerabilities from the version
 number :
 | * Title: CVE-2013-2173: WordPress 3.4-3.5.1 DoS in
 class-phpass.php
 | * Reference: http://seclists.org/fulldisclosure/2013/Jun/65
 | * Reference: http://secunia.com/advisories/53676/
 | * Reference: http://osvdb.org/94235
[...]
 | * Title: WordPress HTTP API Unspecified Server Side Request
  Forgery (SSRF)
 | * Reference: http://osvdb.org/94784
```

WPScan

```
<wordpress version="3.5.1">
 <vulnerability>
   <title>CVE-2013-2173: WordPress 3.4-3.5.1 DoS in class-phpass
   <reference>http://seclists.org/fulldisclosure/2013/Jun/65</re
   <reference>http://secunia.com/advisories/53676/</reference>
   <reference>http://osvdb.org/94235</reference>
   <type>UNKNOWN</type>
 </vulnerability>
 [...]
 <vulnerability>
   <title>WordPress HTTP API Unspecified Server Side Request
 Forgery (SSRF)</title>
   <reference>http://osvdb.org/94784</reference>
   <type>SSRF</type>
 </vulnerability>
</wordpress>
```

WPScan

Vulnerabilities

- WPScan checks if there are known vulnerabilities in your plugins or themes (from *data/theme_vulns.xml* and *data/theme_vulns.xml*)
- But it don't look if the versions you are using are vulnerable
    - You must do the comparaison by yourself!

WPScan

```
[+] Enumerating installed plugins  ...

Time: 00:00:06 <=========> (2501 / 2501) 100.00% Time: 00:00:06

[+] We found 3 plugins:

 | Name: akismet
 | Location: http://192.168.56.101/WordPress/wordpress-3.5.1
/wp-content/plugins/akismet/
```

WPScan

```
 | Name: syntaxhighlighter
 | Location: http://192.168.56.101/WordPress/wordpress-3.5.1
/wp-content/plugins/syntaxhighlighter/
 | Directory listing enabled: Yes
 | Readme: http://192.168.56.101/WordPress/wordpress-3.5.1
/wp-content/plugins/syntaxhighlighter/readme.txt
 |
 | * Title: syntaxhighlighter clipboard.swf XSS
 | * Reference: https://secunia.com/advisories/53235/
```

WPScan

```
<plugin name="syntaxhighlighter">
  <vulnerability>
    <title>syntaxhighlighter clipboard.swf XSS</title>
    <reference>https://secunia.com/advisories/53235/</reference>
    <type>XSS</type>
    <fixed_in>3.1.6</fixed_in>
  </vulnerability>
</plugin>
```

WPScan

Multithreaded authentication bruteforce

- Based on a wordlist
- Can bypass some bad captcha plugins
    - Like captcha
    - Due to a bad implementation
        - If you make a POST request to the authentication webpage without using captcha plugin specific post var, it works!

WPScan

- Do wordlist password brute force on enumerated users using 50 threads:

```
ruby wpscan.rb --url www.example.com --wordlist darkc0de.lst
 --threads 50
```

- Do wordlist password brute force on the *admin* username only:

```
ruby wpscan.rb --url www.example.com --wordlist darkc0de.lst
 --username admin
```

Summary

1. Introduction
2. World most used CMS
3. Why and how audit a CMS?
4. Tools for blackbox auditing most used CMS
5. Conclusion

CMS administration: good practices

How to secure a CMS? (non-exhaustive)

- Keep up to date
  - the CMS
  - plugins/themes (themes are also vulnerable!)
- Don't use some exotical plugins/themes
- Uninstall unused functionnalities (plugins/themes)
- Disable natives unused functionnalities
- Remove unused files (readme, install dir, etc.)
- Use strong password
- Configure your chmod

Tools comparaison

Functionnalities	Joomscan	WPScan
Security detection	Yes	Yes
Malware detection	No	Yes
Service enumeration	No	Yes
Plugin/theme enumeration (passive and BF)	Passive	Yes
Vulnerability scanner	Yes	Yes
User enumeration	No	Yes
Authentication bruteforce	No	Yes

Conclusion

Create one CMS audit tool with

- Version detection,
- Vulnerability scanner,
- Service enumeration,
- Plugin/theme enumaration (passive and bruteforce),
- User enumeration,
- Authentication bruteforce.

Questions?